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DIGITAL CADASTRAL MAP AND PLANNING TECHNOLOGY AND REQUIREMENTS FOR IT

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Abstract: The dynamics and level of development of society in the development of operational and decision-making in the organization of territory management, provision of computer equipment and corresponding programs, creation of information systems at various levels.

Keywords: Map Info, Arc GIS Arc Info Geographic information system programs for updating digital cadastral maps.

Introduction

The dynamics and level of development of modern society require qualitative new approaches in the organization of territorial management and the development of decisions. Currently, these tasks are carried out on the basis of wide management of computer equipment and provision of appropriate programs, ways of creating information systems of various levels.

After creating such a system, the goal is to increase the operational efficiency of territories, data flow processing, management of production and economic processes, and, accordingly, to ensure the direct quality and operational efficiency of decisions made in various areas of the economy.

Topography is the basis of such a system. Also, plans and textual cadastral maps of different scales, which are used for various purposes and created on their basis, are the basis. The use of computer technologies in management and cartography makes it possible to create such maps and plans. The basis of the information contained in them can be widely used in the planning of territories, accounting, land use and solving various cadastral management tasks.

Map Info, Arc GIS Arc Info Geographic Information System programs are used to update digital cadastral maps and integrate graphic data and obtain information about real estate objects in the Geographic Information System database.

Arc Survey has geodetic problem solving technology that allows effective use in fieldwork database management. This maintenance program included a number of pointers for conducting daily fieldwork. They can be reduced during fieldwork and field inventory processes. Both of the methods

being compared can be used at this level in the same way as the Total Station. Geodetic data can be defined and processed in a graphical database.

When entering cartographic data, the following functions should be provided;

- enter data from the digitizer;
- input from the display screen on raster and vector base;
- entering coordinates from the keyboard;
- entering coordinates from recording geodetic instruments;
- entering field measurement data, solving basic geodetic tasks;
- import of ready-made digital maps;
- the possibility of direct, satellite semantic data input in the process of cartographic data input;
- service options (displaying the entered data on the screen, zooming in - zooming out, removing erroneously entered objects, returning to the previous state, etc.);
- automatic correction of systematic errors within given limits;
- registration of errors exceeding the permissible limit;
- interactive correction of multiple iterations;
- automatic formation of topological structures (formation of contours):
- recording errors in the process of forming topological structures and interactively correcting them;
- assembling maps, including removing meaningful and geometric errors in map seams;
- plotting coordinates and forming a continuous seamless map;
- creation of a raster topographical basis, required reconstructions in the storage format and loading of the database according to known coordinates.

Editing of cartographic data. Among the cartographic data correction functions, the following should be provided:

- a set of advanced interactive tools for data editing (getting borders, moving vertices, removing and adding vertices, dividing into borders, moving nodes, drawing the end of segments, cutting closed areas and adding new graphic information to its place);
- automatic binding to base objects;
- the ability to work using a raster base;
- possibility to analyze coordinates from the keyboard and recording geodetic instruments;
- reconciliation of semantic and cartographic database contents, if necessary;
- block wrong actions of the operator;
- options for editing accompanying semantic data;

The provisioning program for managing a semantic database should be divided into the following functional areas:

- entering and using a screen form close to the format of input documents (dialog box);
- control of allowed ranges when entering numeric pointers;
- cross logical control between different indicators (if possible);
- use of classifiers when entering code pointers;

- link semantic information by pointing to the appropriate object;
- inserting one piece of information into a map or a group of separated objects at once;
- agregor semantic data import (pointer).

Establishing and supporting communication between objects of cartographic and semantic database records. Classifiers and data entry:

- input (correction) of classifiers and data from data;
- documentation (printing) of information contained in classifiers and data;
- possibilities to refer to classifications and data from cartographic and semantic database procedures.

Documentation and viewing of semantic data.

- the ability to see any combination of indicators of any given table in the semantic database (separation of the output data by any indicator);
- the ability to choose to view record information that satisfies free logical conditions formed in interactive mode;
- output any structured data fragment to the printer.

Queries and semantic database cartography.

Get information about mapped objects:

- classification by means of search and free object cursor orientation in the semantic database;
- description of information on the found object in a unified format;
- display information in the form of a screen form on the selected object, meeting the consumer's request;
- the possibility of making changes to individual indicators using a unified format;
- get a printed classification of the selected object on the map (in hard copy).

Get information on the selected field, objects:

- display of objects in the selected area on the map (podtsvetka);
- providing a list of objects falling into the specified fields;
- to give detailed information to each of the objects in the field;

to get information about the plot neighbors shown on the map:

- display on the screen the plots of land bordering the selected plot on the map (highlight);
- providing a list of plot neighbors shown on the map;
- provide detailed information to each neighbor;
- queries from a semantic database to a cartographic database. Selection of objects, selected according to the semantic database;
- view the semantic database, select interesting records and automatically display objects on the screen, based on the selected records;
- using recorded queries, automatically search for the necessary records (for example, by address or owner's name) and display the object on the screen based on the found records;
- hard copy capabilities;

- joint analysis and calculations of cartographic and semantic data;
- calculation of land explication within the boundaries of private ownership, land ownership and land use;
- determination of administrative borders with equipment of land plots and calculation of land balance;
- formation of standard forms of calculation of indicators and state static report;
- form a table depending on the quality of the land, placing it on the land-water property map (overlay);
- issuing and creating reports, analytical and presentation materials;
- extracting information from the semantic database in a format that meets the needs of users for any object;
- generating reports on data from the semantic database;
- issuance and formation of documents on calculation results;
- Ability to edit output documents before publishing.
- release and formation of cartography;
- choose a single or free combination map for subsequent releases;
- cutting a free fragment from the selected map to form a map;
- adding additional information to the cut fragment (dimensions, new objects, etc.);
- formalization of the cartoschema (frame, damping, post-frame formalities);
- the ability to put a raster base under the cartographic report;

Output and formation of a text cartogram:

- selection of the type of bars to describe the images displayed on the cartogram and the various values of the selected pointers (setting of colors);
- to form a cartogram, free fragment cutting stored from the cartographic database;
- automatic drawing of object contours based on the values of indicators selected from the semantic database table;
- adding additional information to the emerging cartogram (new objects, conditional symbols, records, etc.);
- cartogram formalization (framework formalities);
- formation of business graphics (output and formation of circular and column diagrams based on the results of data processing from the semantic database);

User service messages, requests. Documenting and Viewing Cartographic Data:

- selection of the required territory to be depicted on the small-scale map scheme display map. Covering this territory, issue a map, choose a map assembled on the ordered territory;
- selection of the required territory by address signs (for example, by street name or settlement). Issuing a map covering this territory, describing the assembled map of the ordered territory;
- view the selected territory (add layers, get zoom, zoom, view in different windows, add raster base);
- print out any free fragment displayed on the map screen.

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